RAND NATIONAL DEFENSE RESEARCH INSTITUTE

JBMC2 Roadmap Development

Office of the Under Secretary of Defense (AT&L)

US Joint Forces Command (USJFCOM)

Agenda

- Roadmap development process
- Supporting organizations
- Roadmap overview
- Summary

JBMC2 Roadmap Development Involves Senior Leaders of Government and Industry

- **Developed in collaboration with Services, Agencies & OSD under the leadership of USJFCOM & the guidance of AT&L**

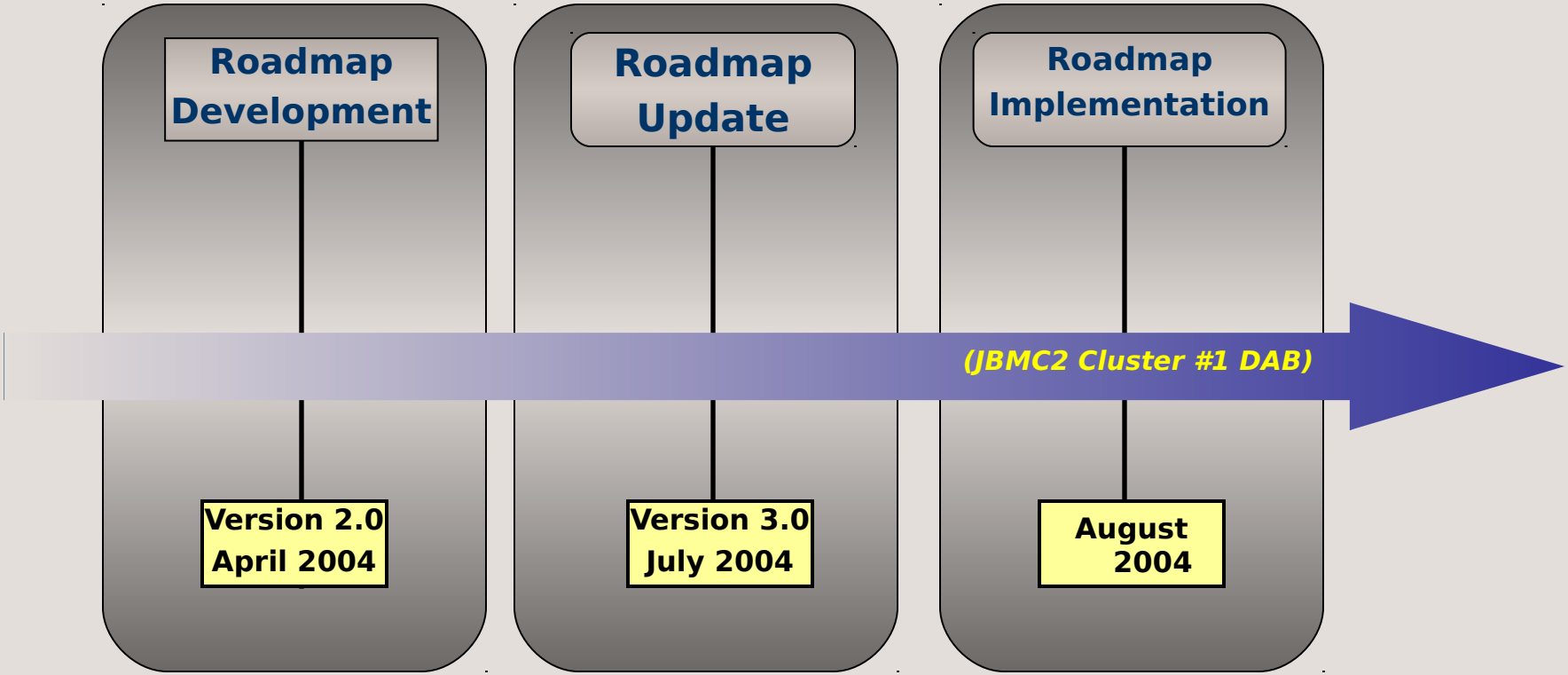
- **JBMC2 Flag Officer Group**
  - Co-chaired by JFCOM J8 (BGen Rogers) & AT&L (Robin Quinlan)
  - Over 40 Flags routinely attended
  - 5 conducted to date.

- **JBMC2 Summits**
  - Co-chaired by JFCOM DepCoCom (LTG Wagner) & AT&L (Dr. Garber)
  - Senior ASD(NII) representative is Dr. Wells
  - Over 100 senior industry (VP) & government attendees (3-stars, 2-stars, 1-stars)
  - 3 conducted to date.

JBMC2 Roadmap Development Working Groups

- **Working groups meet as required to:**
  - Develop key parts of the roadmap
  - Ensure roadmap takes into account existing initiatives and policies where applicable
  - Help synchronize roadmap with on-going/evolving Service and agency initiatives.
- **Existing JBMC2 working groups:**
  - General
  - Joint mission threads
  - Data strategy
  - Interoperability testing.
- **Working groups co-chaired by AT&L and USJFCOM and receive support from multiple FFRDCs.**

JBMC2 Roadmap Development and Implementation Timeline



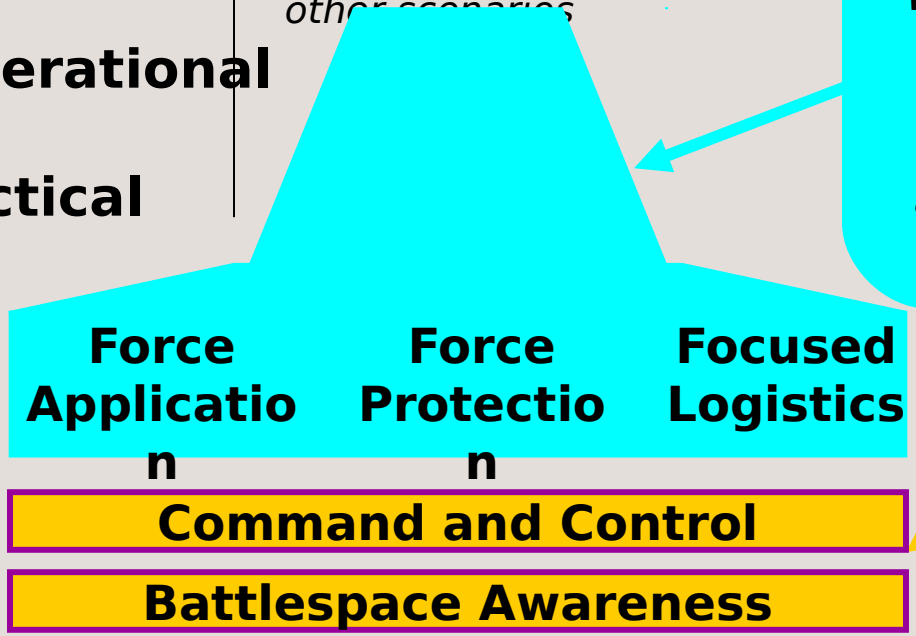
The JBMC2 Roadmap is a living document that will be updated as required to achieve DoD JBMC2 integration goals.

First Order JBMC2 Roadmap Will Focus on the Joint Functional Concepts Under MCO

	Major Combat Operations (MCO)	*Stability Operations*	*Homeland Security*	*Strategic Defense*
National Strategic	*MCO most stressing case in many dimensions Contains BMC2 elements needed in other scenarios*			
Operational				
Tactical				

These Functional Capabilities Board (FCB) Working Groups (WGs) will generate the mission areas and illustrative scenarios

These FCBs support the others and are the focus of the roadmap



JBMC2 Capabilities Considered in the JBMC2 Roadmap

FCB Portfolios	Force Application	Force Protection	Focused Logistics
	• Land ops • Maritime ops • Air ops • Space ops • Special ops • Conventional attack • Joint targeting • Joint fire support • SEAD • Military deception	• Missile defense • OPSEC • CND / Electronic • Ctr / Non-proliferation • Consequence mgmt	• Deployment • distribution • Sustain • Medical • Mobility • Engineering
Command and Control	• Real-time situational awareness (battle management) • Blue • Noncombatant • Red force • Environmental • Political / Military • Combat ID	• Joint force C2 • Campaign planning • Mission planning • Time sensitive targeting • Execution management • Assessment • Collaboration • Knowledge management	
Battlespace Awareness	• All source intelligence collection • ISR management • Processing • Exploitation	• Environmental data collection • Own force information collecti • Predictive analysis	
Net-Centric	• Communications and computer environment • Data management (post, retrieve, etc.)	• Network assurance • Information Assurance • Network Management	

Agenda

- Roadmap development process
- Supporting organizations
- Roadmap overview
- Summary

JBMC2 Roadmap Support Team Members

RAND Corporation

Institute for Defense Analyses

Strategic Analysis, Inc.

MITRE

The Johns Hopkins University Applied Physics Laboratory

Blue Ribbon Panel

System of Systems Engineering Center of Excellence

JBMC2 Roadmap Support Team

- **Overall roadmap support – RAND**
- **Specific roadmap activities:**
  - **IDA:**
    - Legacy phase-out criteria
    - Convergence milestones
    - Implementation after Feb 04 (DAB cluster prep)
  - **SAI:**
    - Technology, Experimentation, ACTDs, etc.
  - **MITRE/APL**:
    - Conception and development of approach for sensor fusion
    - System engineering and planning leading up to interoperability milestones for JBMC2 programs
      - First-order test objectives
      - First-order measures of effectiveness (MOEs)
  - **Blue Ribbon Panel**
    - Scrub of roadmap document in Feb, TBD.

Agenda

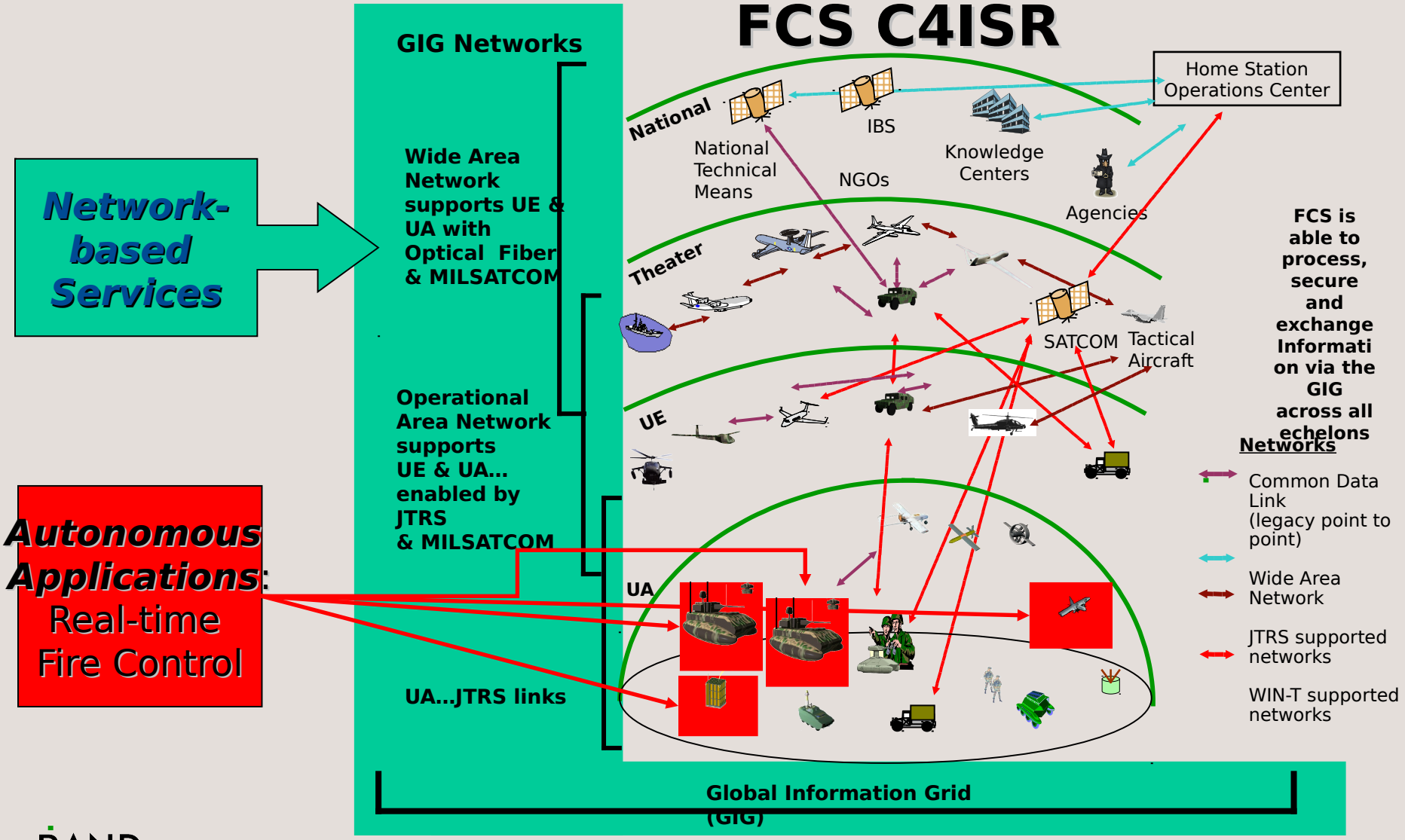
- Roadmap development process
- Supporting organizations
- Roadmap overview
- Summary

Achieving Functional Capability of Net-Centric "Operations"

JBMC2 Roadmap Chapter Outline:

1. Introduction
2. JBMC2 Operational Concepts, Architectures, and Capabilities
3. Plans to make JBMC2 Programs Interoperable, Convergent, or Phased Out by 2008
4. Milestones for Key JBMC2 Initiatives
5. JBMC2 Capability Development and Integration Management
6. JBMC2 Data Strategy
7. Net-Centric Underpinnings of JBMC2
8. DOTMLPF Strategy for JBMC2
9. Experimentation and Technology for JBMC2
10. Joint Systems-of-Systems Development Testing and Operational Testing and Evaluation
11. Summary and Conclusions

"A Balance of Data Distribution"



RAND

DG March 2004

JBMC2 Data Interoperability Approach: Common Interfaces for "Systems of Systems," Not Point to Point Connections

JBMC2 Program Cluster

Tight coupling and integration
Ultra-high reliability
Irreversible sudden operational consequence

Human filtered
Fused with multiple sources
Opportunity for correction

SoSCE Data Management Spectrum

JBMC2 Common Interfaces

Direct-exchange Interfaces

- For real-time, high-precision tasks such as tactical SA and fire control
- Directly specify how systems use and share a common set of data elements (e.g., SIAP track sharing applications)

Mediation-based Interfaces

- For non-real-time planning and analysis tasks
- Use NCES / XML discovery and translation

RAND

DG March 2004

Joint Mission Threads Will be Used to Determine JBMC2 Integration Priorities

- USJFCOM will develop the Joint Mission Threads
- Joint Mission Threads will be used to identify which JBMC2 systems should be integrated together and level of integration needed
  - System of Systems (SoS) architecture based on operational needs, joint lessons learned, and recent operational experience
- Select JBMC2 programs will be identified as "Pathfinder" programs
  - These will form the core of the SoS architecture for JBMC2

Summary

- **Have implemented a JFCOM / AT&L / NII coordinated approach with the Services to produce the JBMC2 Roadmap**
  - Version 2.0 due in April 2004 will include a substantial amount of new material to expand on the content currently within the roadmap
  - Version 3.0 due is due July 2004.
- **Follow-on senior leader review in summer**

A coherent and executable plan that will lead to integrated and interoperable JBMC2 capabilities for the joint warfighter

JBMC2 Capabilities in the Context of the Joint Force Network

Joint Force Networking

- Enables the infospaces, and infospace connections, via net-centric underpinnings, tactical data links, and core enterprise services to enable the infospaces

- Variable latency requirements
- Variable data precision requirements
- Wide, unpredictable range of data needed

Operational Joint C2 InfoSpace

- Shared Situational Awareness and Collaboration Capabilities

Tactical InfoSpace #1

- Joint Ground Maneuver Mission – Shared Situational Awareness

Tactical InfoSpace #2

- Integrated Air/Missile Defense Mission – Shared Situational Awareness

- Very low latency requirements
- No data ambiguity allowed
- Limited, predictable range of data needed

RAND

DG March 2004